Existing Conditions Assessment

Financial District and Seaport Climate Resilience Master Plan

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1. Overview & Objectives

As part of Phase II of the master plan process, the project team extensively studied the existing conditions of the Financial District and Seaport neighborhoods. This included a review of transportation and maritime networks and infrastructure, subsurface infrastructure (including drainage, subway tunnels, and other utilities), the distribution and types of open space, how people use and access the waterfront, land use and urban characteristics, historic districts and landmarks, topography and soil conditions, East River bathymetry and tidal conditions, and neighborhood demographic trends.

Generally, the study area extends along the East River from the Brooklyn Bridge to the Battery and from an area east of the pierhead line in the East River to State/Street Broadway. It encompasses Wall Street, Fulton Market Place, the Historic South Street Seaport, the Battery Marine Building, and Pier 11.

As part of this process, the project team developed a solid baseline understanding of the existing conditions using geospatial datasets and published mapping and data sources, in addition to field studies where necessary. The density of infrastructure and complex conditions in the study area indicated the master plan would require balancing the benefits of the resilience strategies with existing uses and development in the study area. The project team found that significant technical constraints exist in the on-land portions of the study area, which ultimately played a pivotal role in determining a need for a shoreline extension into the East River to achieve the master plan's goals. However, various in-water considerations also played a role in shaping the vision for this shoreline extension and ensuring provisions are made in the master plan to avoid, minimize, and mitigate any ecological impacts. Details on how the existing conditions analysis played a central role in considerations relating to the design of the coastal resilience solutions can be found in various other appendices, as noted throughout this appendix where applicable.

2. Transportation and Maritime

The study area serves as a vital multi-modal regional transportation connector. The project team determined that the master plan must maintain its functionality and reliability and support future capacity needs for all modes while allowing for adaptation to future transportation trends. This includes public transit, roadways, non-motorized, and maritime transportation (see Figure 1). See Section 3 of this appendix for additional details on subway lines and stations in the study area.

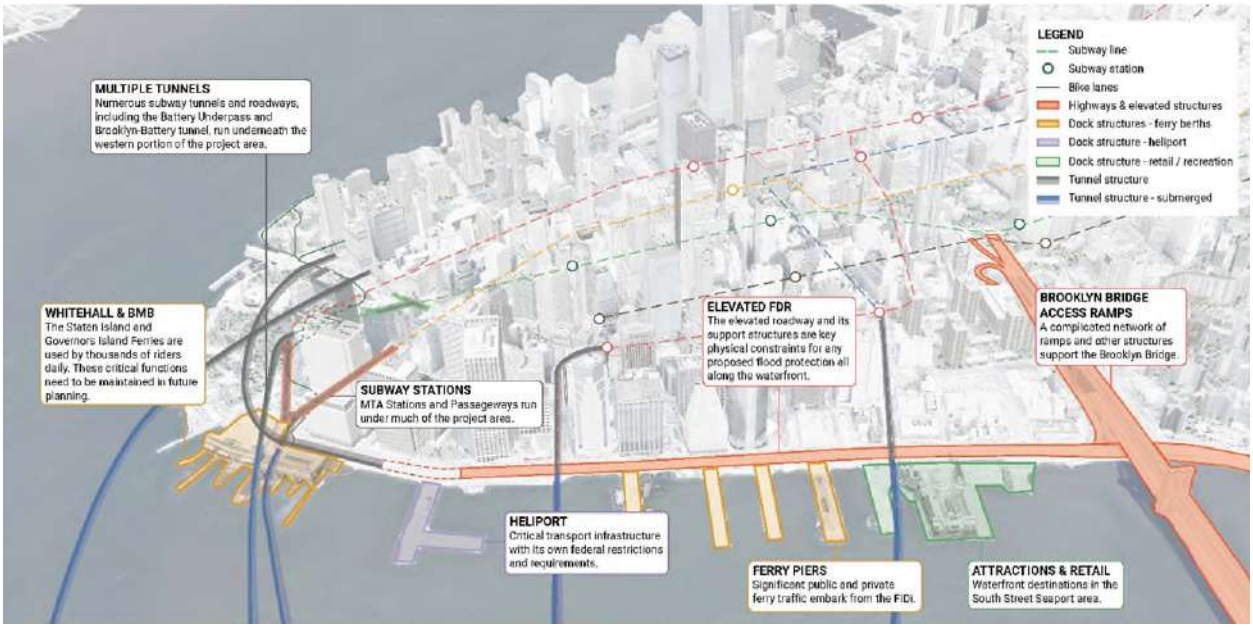

Figure 1. Study Area Key Transportation Assets

2.1 Maritime

The maritime uses in the Financial District and Seaport primarily provide waterborne transportation across the city. The primary maritime assets in question include:

- The Whitehall Ferry Terminal (WFT): This terminal serves the Staten Island Ferry, the busiest passenger ferry route in the country. The Staten Island Ferry is a free ferry service that provides a critical link for about 70,000 daily passengers between Staten Island and Lower Manhattan (based on 2019 transit ridership figures).
- The Battery Maritime Building (BMB): The Battery Maritime Building, a national historic landmark, provides service for passengers and freight vehicles to Governors Island, which is operated by the Trust for Governors Island. One of the slips is also operated by NYC Department of Transportation (DOT) and provides regional commuter ferry service.
- The Pier 6 Downtown Manhattan Heliport: This heliport provides landings for the New York Police Department (NYPD), emergency access, and a secure landing spot for important government officials, including the President of the United States. The heliport also provides private tourism flights and charter service to area airports and other local/regional destinations.
- The Pier 11/Wall Street Ferry Stop: Pier 11 is the busiest ferry landing in the NYC Ferry service and serves several other regional ferry operators.

- Piers 15, 16, and 17: Piers 15, 16, and 17 serve as public gathering spaces, including where people can view historic ships and board sightseeing cruises.

2.2 Roadways

Existing roadway infrastructure in the study area is in large part defined by the FDR Drive viaduct, an arterial regional highway that runs along the existing waterfront and travels from above-grade in the north of the study area to below-grade at the southernmost point of the study area, merging into the Battery Park Underpass (BPU). This highway provides critical connections to Route 9A and the Hugh L. Carey Tunnel via the BPU and to the Brooklyn Bridge at an interchange at the northernmost part of the study area. The elevated viaduct runs above South Street, which connects to a variety of through-streets and smaller local streets throughout the area (see Figure 2).

Figure 2. Existing Roadway Context

The FDR Drive viaduct currently has two travel lanes in each direction which support current peak hour traffic flows, as detailed below. Any alternatives for the FDR Drive viaduct would need to consider and account for regional connections at both the Battery Park Underpass (BPU) (including its connection to the Hugh L. Carey Tunnel) and the FDR Drive/Brooklyn Bridge interchange.

The project team used traffic volume counts from October 2019[1] to estimate current-day traffic flows along the FDR Drive viaduct and at the Brooklyn Bridge interchange. Current traffic volumes, as well as representative past volumes, are also shown in Figure 3.

[1] Provided by DOT

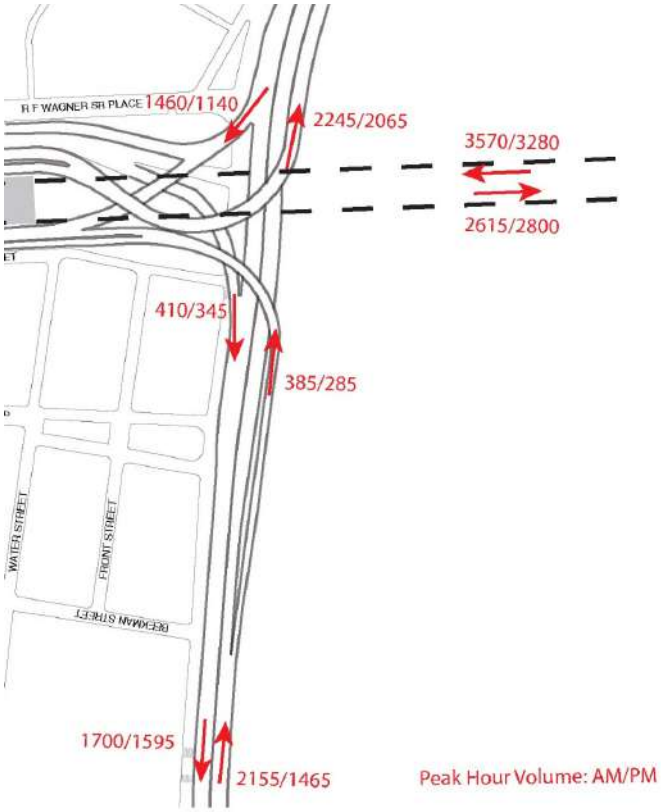

Figure 3. 2019 Traffic Volumes (AM/PM)

For point of comparison, the project team also looked at the 2002 Lower Manhattan FDR Drive At-Grade Study. The project team found that traffic volume counts from October 2019 for the FDR Drive viaduct northbound and southbound (south of the Brooklyn Bridge) are significantly lower than the assumed and projected future volumes in the 2002 study. As shown in Table 1, the 2002 study findings show traffic volumes 30-70% higher than current conditions.

Table 1. Projected Peak Hour Traffic Volumes (in vph) from 2002 FDR At-Grade Study (AM Peak/PM Peak)

	From 2002 Study (1)		**DOT counts (2)**
	2002	**Projected 2022**	**2019**
FDR Drive SB (south of bridge)	2,400 / 2,050	2,640 / 2,255	1,700 / 1,595
FDR Drive NB (north of bridge)	2,570 / 2,300	2,827 / 2,530	2,155 / 1,465

(1) Lower Manhattan FDR Drive At-Grade Study, 2002 (2002 baseline and 2022 projected with 10% growth)
(2) NYCDOT Volume Counts October, 2019

Additional details on transportation and maritime assets in the study area, in addition to future projections and implications for the master planning and design process, can be found in the Transportation and Maritime Infrastructure Appendix.

3. Subsurface Infrastructure

A complex network of critical subsurface infrastructure resides beneath the streets in the study area, inclusive of an interceptor drainage sewer, subway tunnels and stations, an oil-o-static electric line, and various other utilities (see Figure 4).

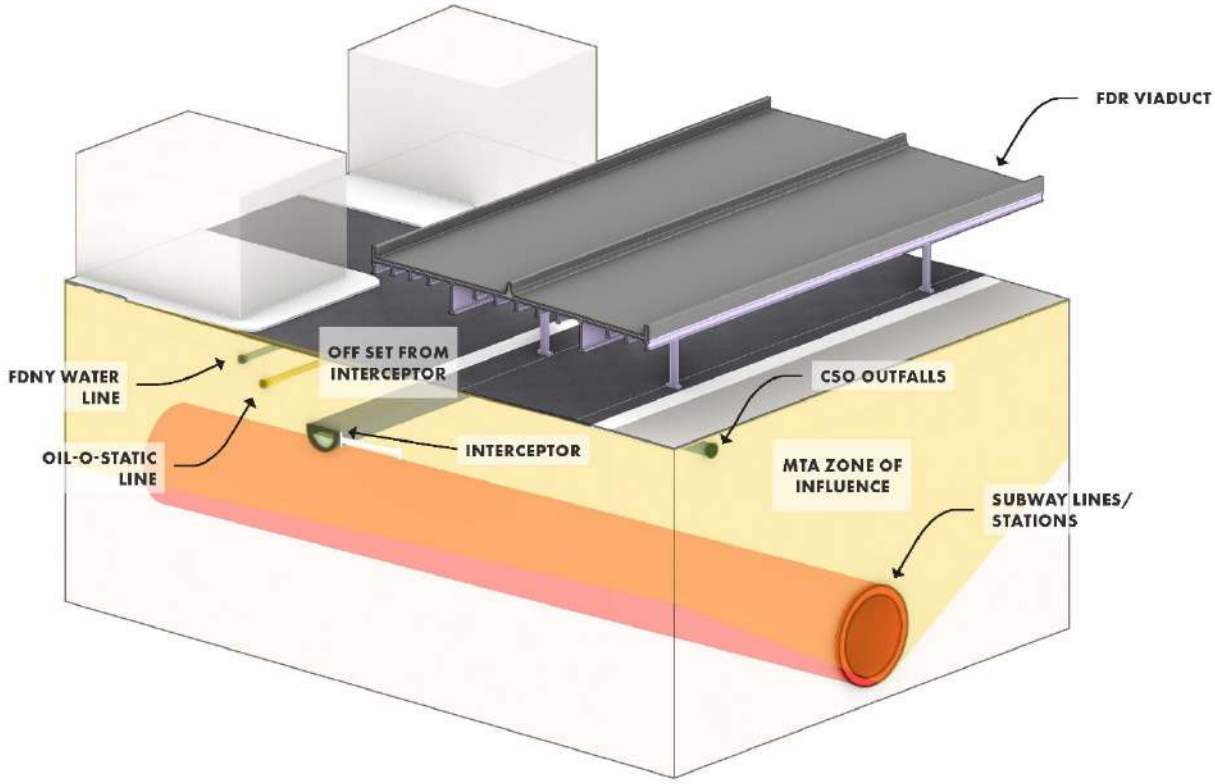

Figure 4. Underground Infrastructure in the Study Area

The study area is characterized by paved surfaces with little green space to absorb water into the ground. As a result, water directly enters the sewer system, which largely works as a gravity-based sewer system with water flowing from higher elevations to lower elevations. Underground sewers direct these flows towards the shoreline (see Figure 5). Lower Manhattan's drainage system is also largely a combined system, meaning that wastewater flows into the same underground pipes as stormwater. During normal weather conditions or light rain, wastewater and stormwater are collected in a large interceptor pipe along the shoreline—the defining component of the study area's underground drainage infrastructure. This combined flow is then transported to a facility in Brooklyn to be treated before being released into Newtown Creek.

The interceptor pipe, which is a large sewer that receives flow from sanitary or combined sewers during dry weather and receives additional stormwater during storms, runs north to south across the study area. DEP requires large offsets (e.g., 10-15 feet for piles) from the interceptor sewer, limiting the ability to construct foundations under the FDR Drive viaduct or on South Street. At 9 feet wide, the interceptor sewer is the largest piece of stormwater infrastructure in the study area and cannot be easily relocated.

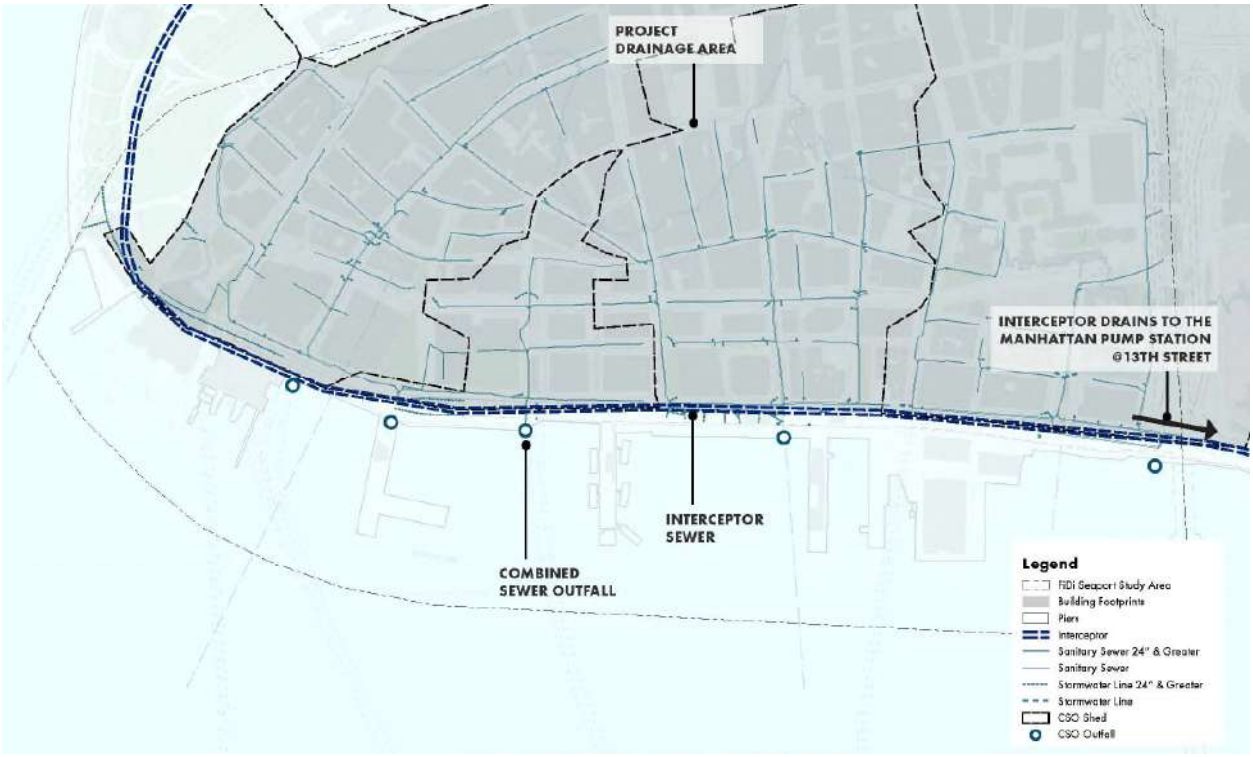

Figure 5. Existing Drainage Infrastructure in the Study Area

Several MTA subway tunnels and stations also exist in the study area (see Figure 6). It is important to note that MTA maintains a "zone of influence" around a subway tunnel, over which additional loading is not permitted. MTA subway tunnels and stations currently in the study area include:

- The Whitehall and South Ferry subway station complex is located underground directly adjacent to the Whitehall Ferry Terminal.
- The MTA 1 (South Ferry Loop) and 4/5 subway lines run under State Street and under the back edge of The Battery.
- The MTA R/W subway lines run beneath Whitehall Street.
- The MTA J/Z subway lines run beneath Broad Street.
- The MTA 2/3 subway lines run underground just south of Pier 11 and Old Slip.
- The MTA A/C subway lines run underground between Piers 16 and 17 through Fulton Mall.

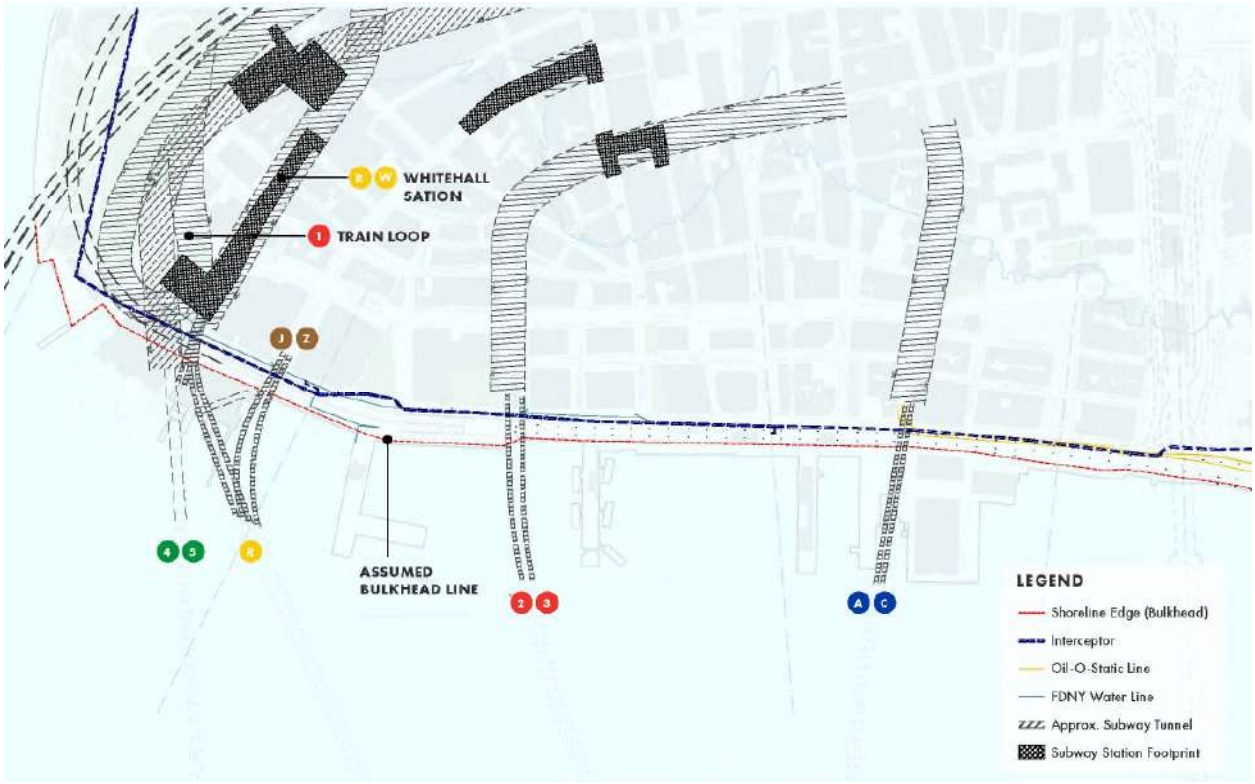

Figure 6. Subway Lines and Stations in the Study Area

Further, an oil-o-static line, a high-transmission underground electric line kept cool using oil—maintained and operated by ConEdison—runs from Pier 17 to the north of the study area. Based on lessons learned from other projects such as East Side Coastal Resiliency, these lines are very challenging to move or relocate.

Additional details on how underground infrastructure played a role in determining what coastal defense solutions are feasible in the study area can be found in the Flood Defense Alignments Appendix.

4. Open Space

Within the study area, existing open space is primarily composed of the waterfront esplanade, shown in white in Figure 7, as well as the East River Greenway, shown in blue, and vegetation, shown in green. The existing vegetation is dispersed across the entire length of the site and includes trees, above-ground planters, and elevated lawns on Pier 15 with views of the harbor. The project team determined that larger open spaces appropriate for gathering and recreation are currently lacking in the area.

Across South Street, the existing open space is met with other open spaces including pedestrian plazas like the Vietnam Veterans Memorial, green spaces like The Elevated Acre, and playgrounds like Imagination Playground. Together, these create a network of open spaces extending back into the Financial District and Seaport neighborhoods. These were an important consideration for the development of open space and potential programming east of the FDR Drive viaduct in the master plan.

Figure 7. Existing Open Spaces in the Study Area

The project team categorized open space within the study area as waterfront or non-waterfront and as primary or adjacent (see Figure 8). Waterfront open space includes the area from the outer edge of the FDR Drive viaduct to the edge of the shoreline. The project team further categorized this in two primary ways (see also Figure 9):

1. Open space that falls underneath the FDR Drive viaduct
2. Open space that falls outside of the FDR Drive viaduct

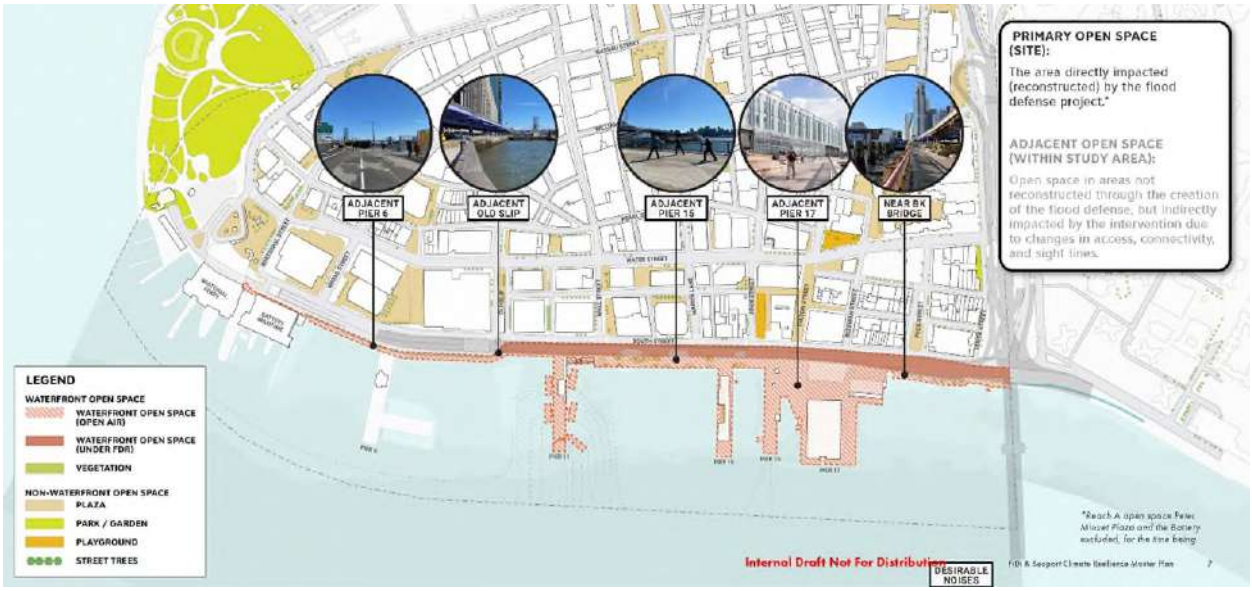

Figure 8. Existing Open Space Typologies

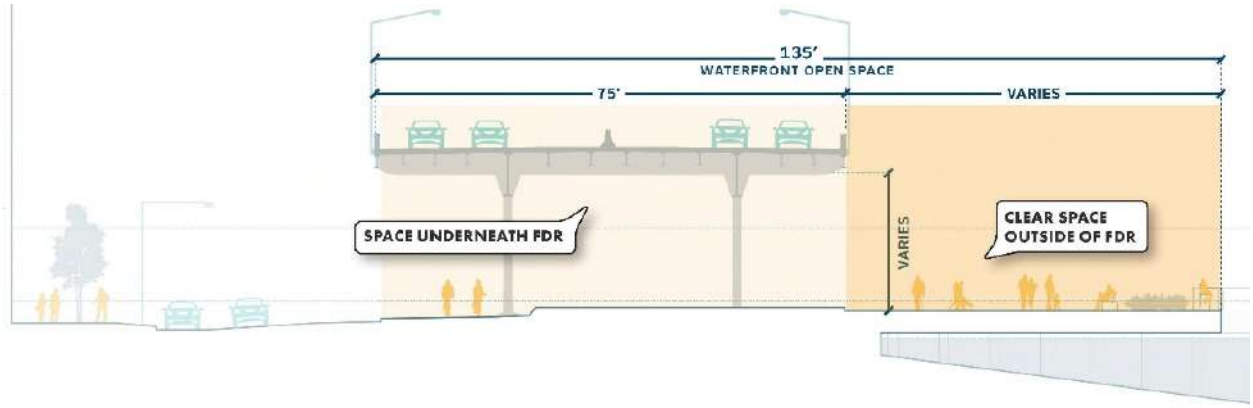

Figure 9. Illustration of Space Underneath vs. Outside the FDR Drive Viaduct

The total open space from the Battery Maritime Building to the northern boundary of the project site at the Brooklyn Bridge consists of roughly 10 acres of open space. In addition to this, there are roughly 160,000 square feet of structures and 45,000 square feet of greenway. When analyzing the existing open space, the project team divided the site into four zones by their different site characteristics (see Figure 10). In Zone 1, open space adjacent the FDR Viaduct underpass is narrow and disconnected from the urban fabric; in Zone 2, it widens and is met with 1-2 story structures; in Zone 3, it is connected to structures around Pier 17; and in Zone 4, it is bifurcated by the greenway.

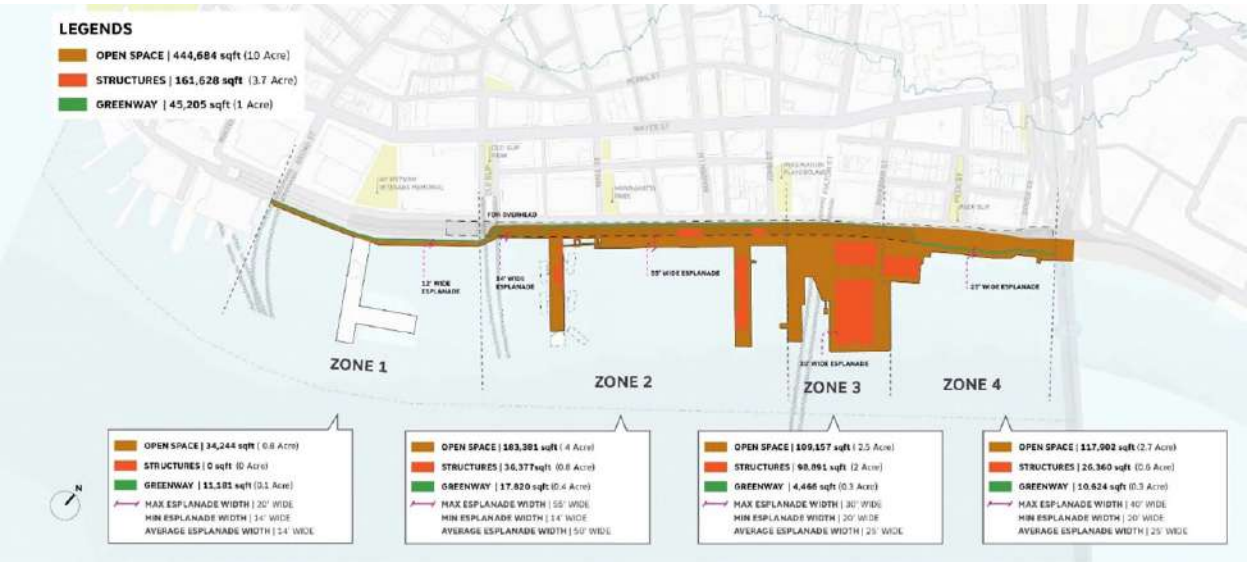

Figure 10. Total Existing Open Space Area by Zone

The project team looked at how much of the existing open space is water-facing vs. non-water facing (see Figure 11). Water-facing was defined as an area with unobstructed views out towards the East River. Non-water facing open space was defined as open space which sits behind structures, such as Pier 17, thus blocking views of the water. From the Battery Maritime Building to the Brooklyn Bridge, almost the entirety of the open space in the study area—roughly 97%—is water-facing.

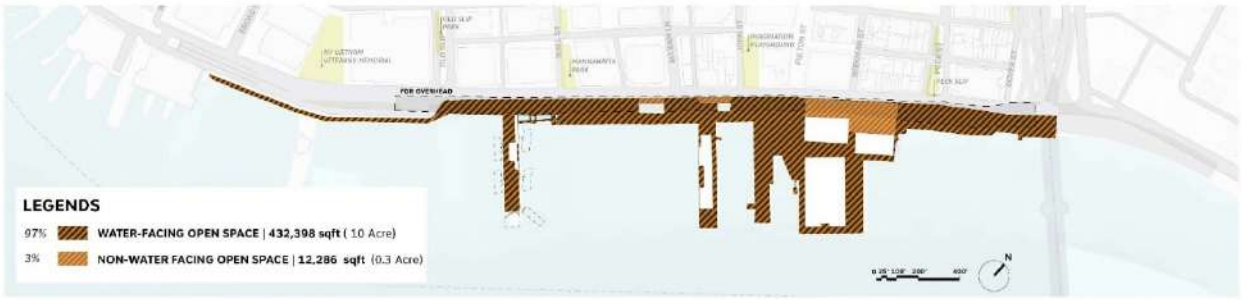

Figure 11. Existing Waterfront Facing vs. Non-Waterfront Facing Open Space

The project team also looked at how much of the existing space is usable vs. inaccessible (see Figure 12). Usable open space was defined as an area people can access with ease. Inaccessible open space consists of planters, vegetation, and other place unnavigable by foot. From the Battery Maritime Building to the Brooklyn Bridge, almost the entirety of the existing open space—roughly 94%—is usable.

Figure 12. Existing Usable vs. Inaccessible Open Space

Finally, the project team looked at how much of the existing open space is open to the sky vs. under a structure (see Figure 13). Open space open to the sky was defined as areas with direct sky and sun exposure, while areas under structure were defined as those falling under the footprint of the FDR Drive viaduct. From the Battery Maritime Building to the Brooklyn Bridge, just over two-thirds of the existing open space—roughly 70%—open to the sky.

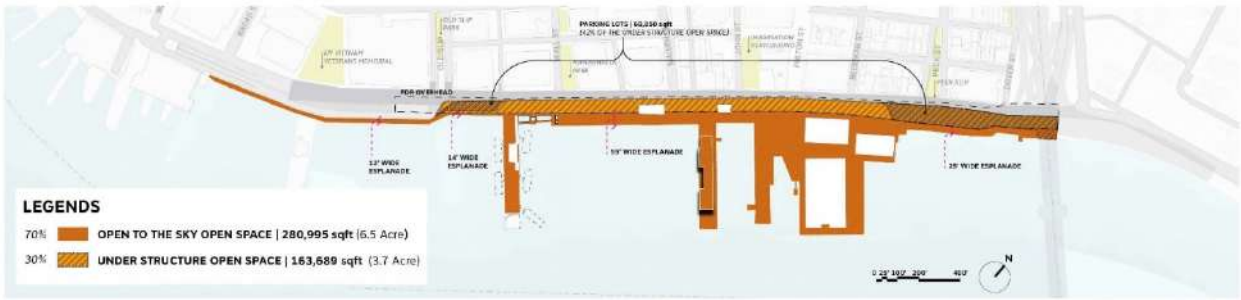

Figure 13. Existing Open to Sky vs. Under Structure Open Space

For more details on open space existing conditions in the study area and how this analysis informed the master planning and design process, see Appendix XX.

5. Waterfront Experience and Access

The project team also investigated existing user experience and access along the waterfront. The project team started by analyzing the user experience across the site for the various user groups identified (see Figure 14). Detailed profiles for each user group can be found in Appendix XX.

Over the course of this investigation, the project team concluded the following:

- The Financial District and Seaport waterfront sees both intentional users (those with specific needs) as well as users passing through by nature of the site's connectedness to the city's transportation networks
- The waterfront's maritime transportation serves different users' needs and activates public space differently based on who the user is
- Certain program types (e.g., dog run) are not used by all user groups
- User groups regard the site as a distribution of scattered destinations that are connected by mobility infrastructure
- No user groups should be precluded from future site access and use

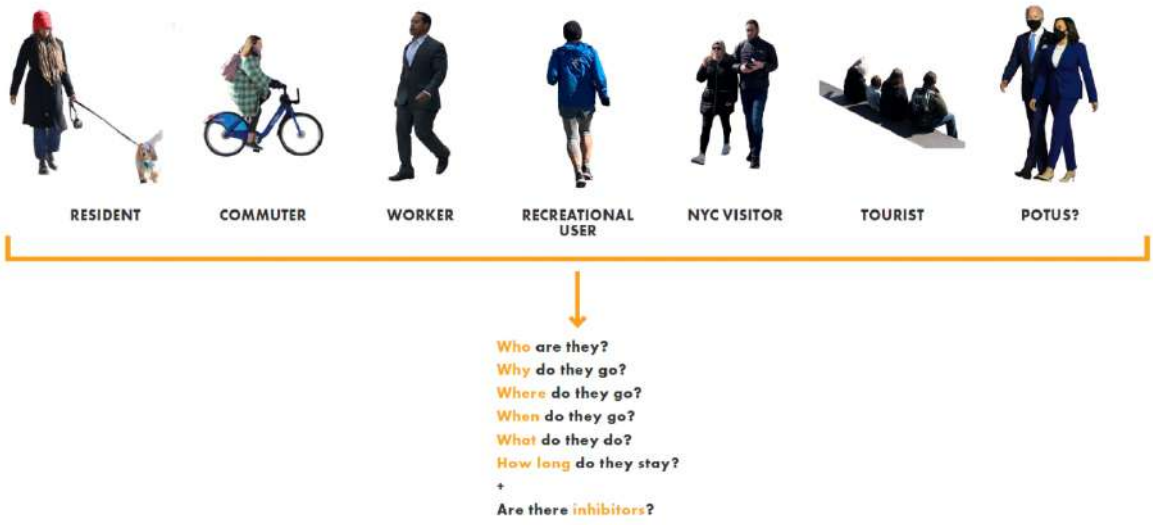

Figure 14. Study Area User Groups

The project team found that, while much of the waterfront stretching from Pier 11 to Pier 17 is semi-accessible to pedestrians, most of the waterfront in the study area is not accessible (see Figure 15).

Figure 15. Physical Waterfront Access in the Study Area

Currently, the frequency of waterfront access points in the study area ranges from between 230 feet apart to over 1,300 feet apart in one area—much further apart than the project team's recommended target access frequency of about 500 feet (or about every two blocks).

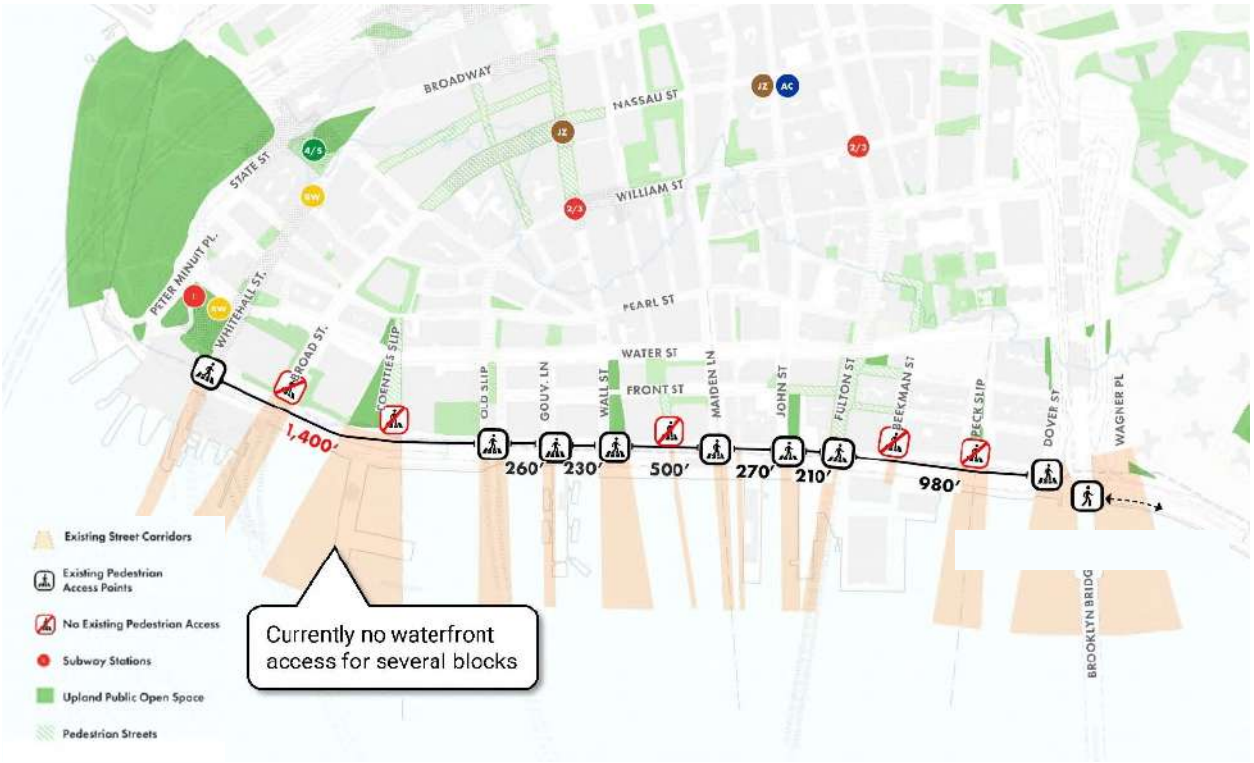

Figure 16. Present-Day Waterfront Access Frequency

Existing pedestrian and non-motorized access and connectivity to and through the waterfront are characterized by:

- North-south connectivity through site, including continuous bike and pedestrian connectivity along the waterfront
- Connections to adjacent neighborhoods, particularly via eight intersections which provide safe at-grade road crossings to the waterfront from adjacent neighborhoods.
- Connections to the water via continuous visual access to the water, get-downs, and low points which allow people to "touch the water"
- Access to water-based transportation at Whitehall Terminal, Battery Maritime Building, Pier 11, and Pier 16

However, large blocks toward the south of the study area limit access and tend to segregate the waterfront zone from inland neighborhoods. Further north at the Seaport, the first 40 feet of retail frontage nevertheless generate successful urban connections between upland neighborhoods and the waterfront. Visual access and sightlines to the water across the study area (see Figure 17) are heavily limited by the presence of the FDR Drive viaduct, which currently serves as the waterfront marker. In sum, the project team found that while the framework for universal access exists, existing connections are piecemeal.

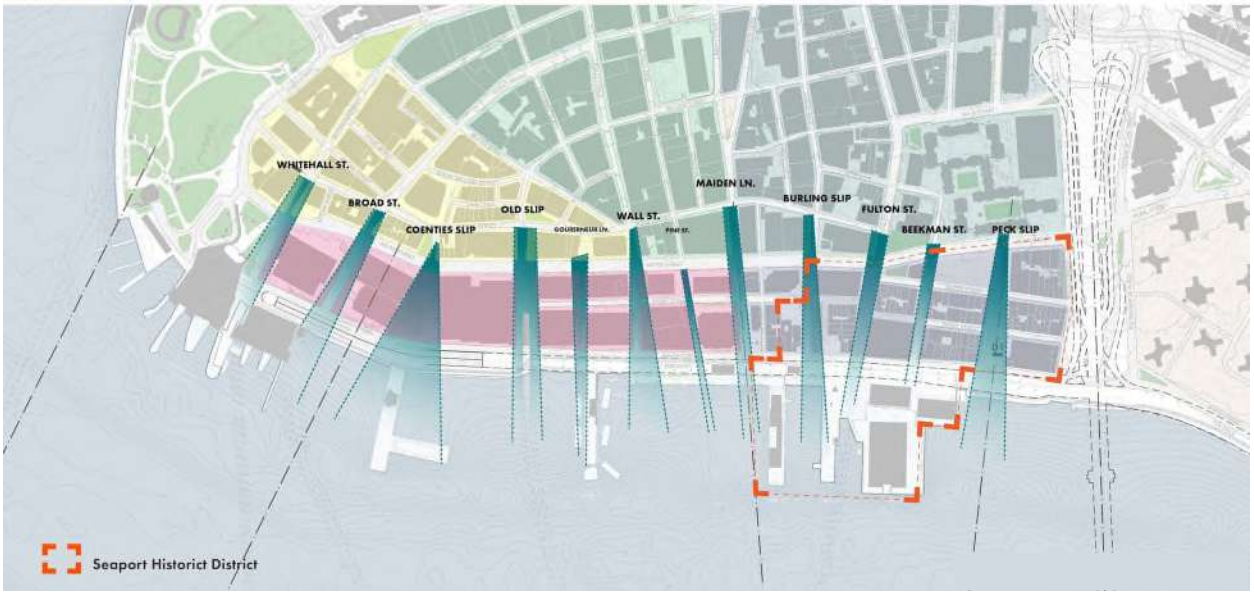

Figure 17. Existing Sightlines Along the Waterfront

In investigating the existing waterfront experience, the project team also considered the programmatic distribution across the study area (see Figure 18**Error! Reference source not found.**). Certain programs, such as the waterfront esplanade and East River Greenway, are continuous across the site. These programs maintain a consistent north-to-south presence from the Brooklyn Bridge to the Battery Maritime Building and allow people—both pedestrians and cyclists—to move easily across the site. Other programs, such as specific destinations, vegetation, and public amenities, are distributed across the site and enhance the overall waterfront experience.

When looking at the distributed open space programs across the study area, the project team considered how these elements are distributed, if and where they are clustered, and how this relates to neighborhood connections. As seen in Figure 18, larger-scale public programs, civic destinations, and commercial activity are centered in the area stretching from Pier 11 to Pier 17, while elements such as vegetation, seating, and benches are more evenly distributed across the entire waterfront esplanade.

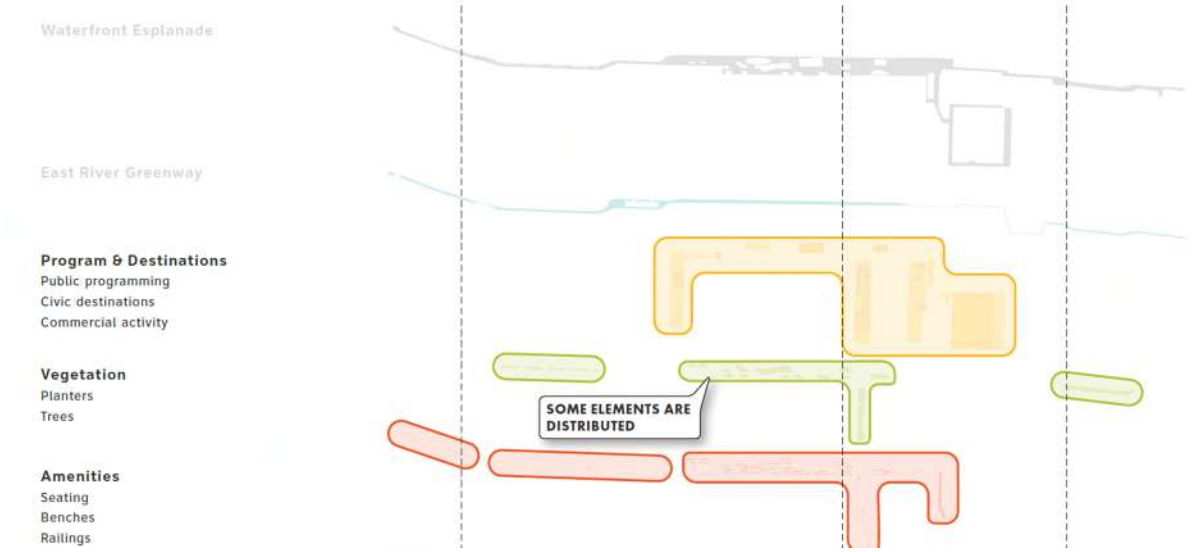

Figure 18. Continuous vs. Distributed Waterfront Programs in the Study Area

For additional details on the waterfront experience in the study area, as well as how this analysis figured into the master planning and design process, see the Open Space & Program Appendix.

6. Land Use and Urban Characteristics

Much of the portion of the study area from the inland neighborhoods behind the Battery Maritime Building to Pier 15 is characterized by mid-large bulk, mid-high density built urban environments dominated by commercial and limited pockets of mixed-used residential buildings. Many towers in this portion of the study area are tall, ranging from 500-700 feet high. Further north in the study area, the South Street Seaport Historic District is markedly different in its small bulk, lower density character consisting of a wider diversity of uses including a high concentration of shopping centers, mixed-use buildings, and tourist attractions, while the waterfront itself is primarily characterized by wide and low transportation facilities and open spaces. Figure 19 identifies existing building heights and density characteristics in different portions of the study area, Figure 20 displays the total building area by land use type in each of these sub-areas, and Figure 21 displays the variation in density across the study area by built floor area ratio (FAR).

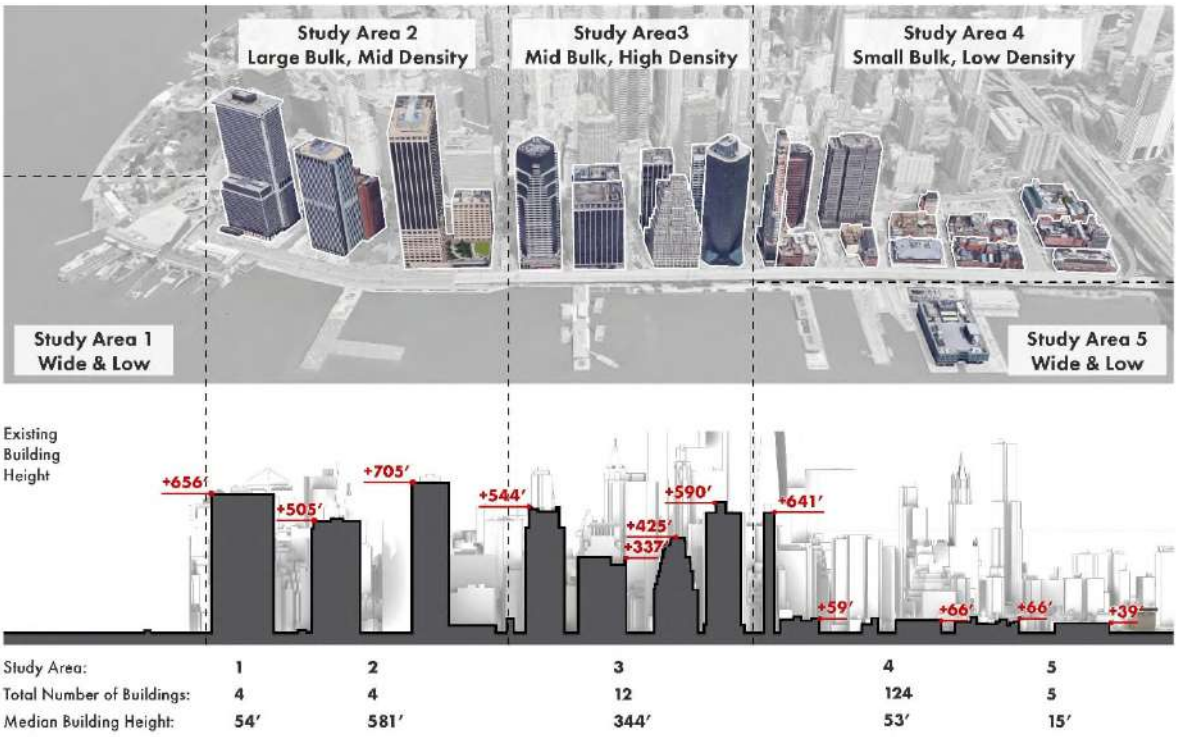

Figure 19. Building Height and Scale Context

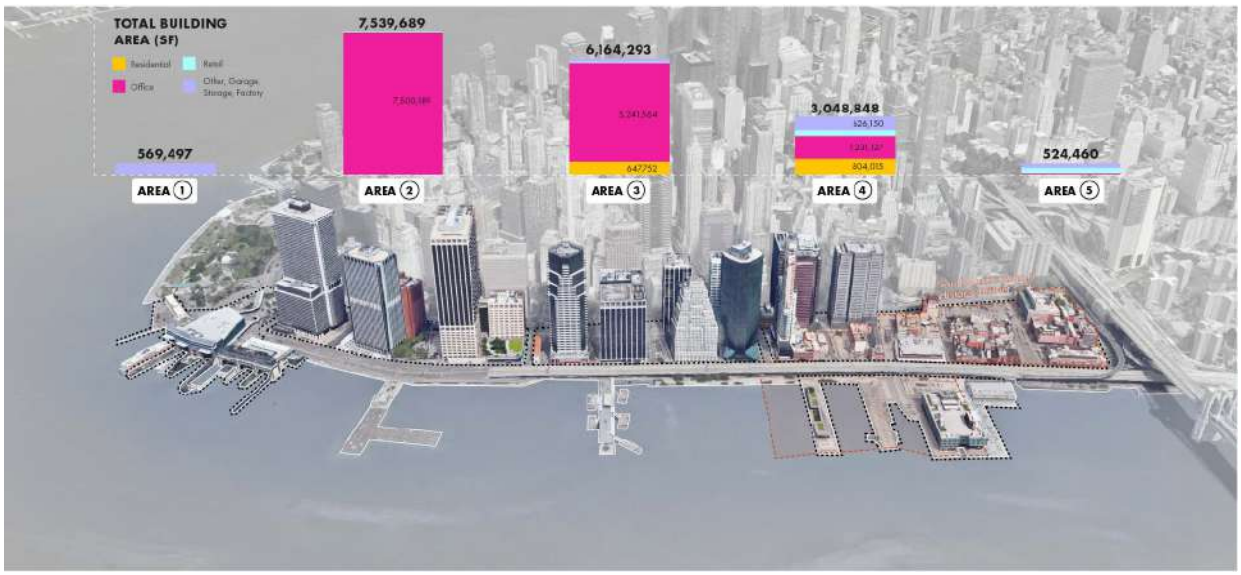

Figure 20. Total Building Area (SF)

Figure 21. Built Floor Area Ratios and Variable Density in Study Area

The study area includes several zoning districts (see Figure 22), including M1-4 (manufacturing, typically light industrial uses), C4-6 (commercial, densely-built), C6-9/C6-2/C6-4 (commercial, typically major business districts), R8 (residential, ranging from mid-rise to much taller buildings), R8A (residential, high density), and R10 (residential, the highest residential density in the city).[2] All tax lots along the waterfront are currently zoned under M1-4 or C4-

[2] NYC Department of City Planning. "About Zoning Districts." 2022. Available online at: https://www1.nyc.gov/site/planning/zoning/districts-tools.page

6. These tax lots would all be considered “waterfront zoning lots” as defined by the Zoning Resolution. All waterfront lots are located within the Special Lower Manhattan District, while the lots from Pier 9 to Pier 17 are also within the South Street Seaport Historic District. The zoning districts across the study area and their base maximum FARs are displayed in Figure 22 and Table 2, respectively.

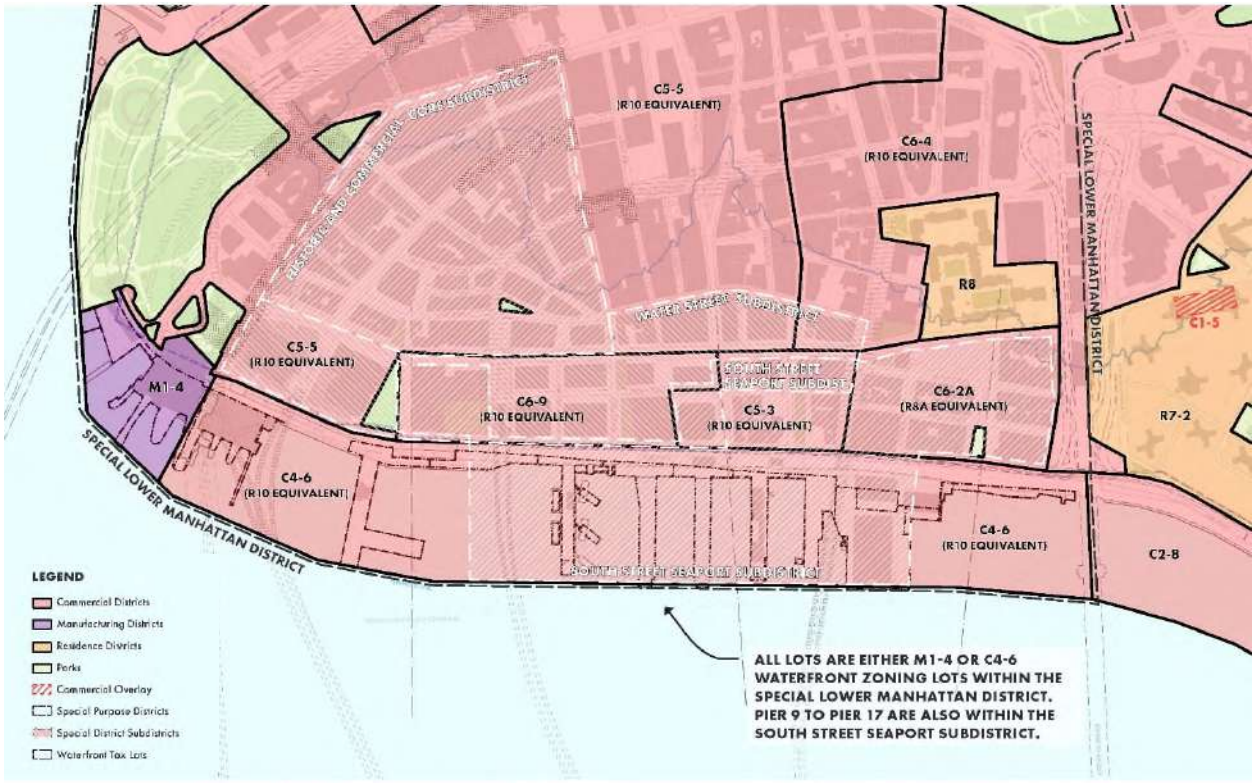

Figure 22. Existing Zoning Districts in Study Area

Table 2. Base Maximum Floor Area Ratio (FAR) by Zoning District

Zoning District	Equivalent Residential District	Manufacturing FAR	Commercial FAR	Community Facility FAR	Residential FAR	Maximum FAR
M1-4	N/A	2	2	6.5	0	6.5
C4-6	R10	0	3.4	10	10	10
C6-9	R10	0	15	15	10	15
C5-3	R10	0	15	15	10	15
C5-5	R10	0	15	15	10	15
C6-2A	R8A	0	6	6.5	6.02	6.5

Zoning District	Equivalent Residential District	Manufacturing FAR	Commercial FAR	Community Facility FAR	Residential FAR	Maximum FAR
C6-4	R10	0	10	10	10	10
R8	N/A	0	0	6.5	6.02	6.5
R8A	N/A	0	0	6.5	6.02	6.5
R10	N/A	0	0	10	10	10

Existing land uses in the study area are dominated by commercial and office buildings in the inland neighborhoods and transportation and utility uses along the waterfront, interspersed with mixed residential and commercial buildings, public facilities and institutions, open space and recreational facilities, and various other uses (see Figure 23).

Figure 23. Existing Land Uses in Study Area[3]

The majority of the inland portion of the study area consists of privately-owned buildings, while the City owns the majority of land along the waterfront, including the various maritime facilities (see Figure 24).

[3] NYC MapPLUTO

Figure 24. Property Ownership in Study Area

See Access and Circulation and Open Space & Program Appendices for additional detail on the existing urban fabric in the Financial District and Seaport and how these considerations played a role in the master planning and design process.

7. Historic Districts and Landmarks

Many historic structures contribute to the overall identity of the Financial District and Seaport waterfront. The Battery Maritime Building, a landmarked structure that historically serviced ferries throughout the East River, is now home to an event space and the Governors Island ferry. The South Street Seaport Historic District features renovated mercantile buildings and a dock for historic ships, like the *Wavertree* at Pier 16, serves as a reminder of the area's history as a port. The South Street Seaport Museum also houses many historic artifacts, such as art and books. With over 400 years of history, the project area is rich in historical resources that must be preserved and protected wherever possible (see Figure 25).

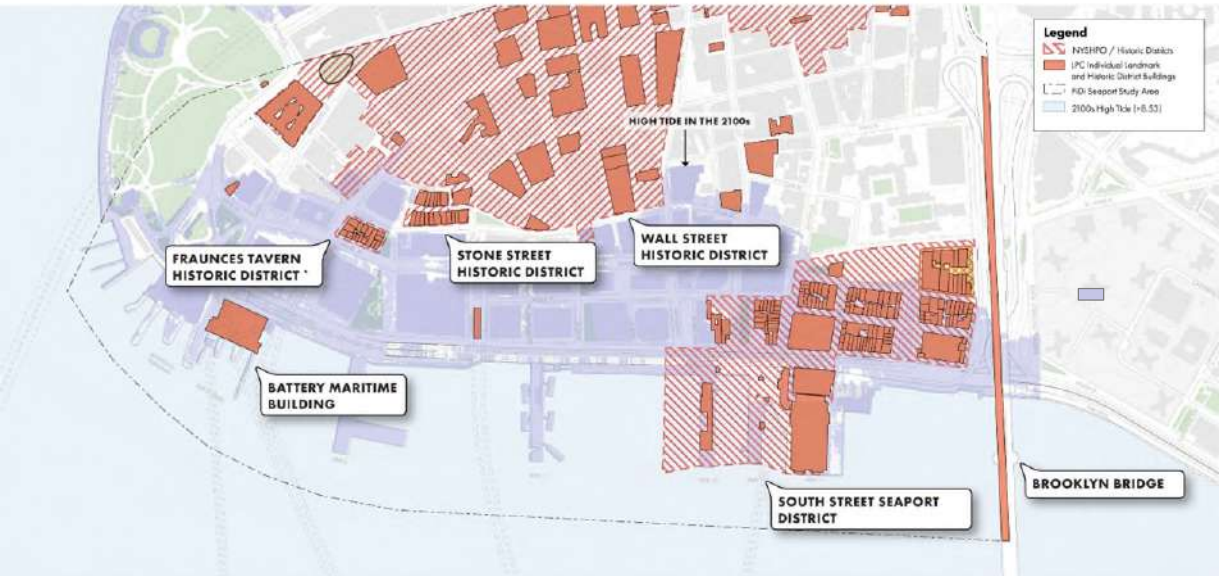

Figure 25. Study Area Historic Districts and Landmarks

The project team found that many of these historic assets will be vulnerable to daily tidal flooding as early as the 2050s while others will be exposed to a coastal storm even in 2100. At-risk historic districts and landmarks in the study area include:

- Three historic districts: the South Street Seaport District, the Stone Street Historic District, and the Wall Street Historic District
- Six historic maritime sites, including the Battery Maritime Building/Municipal Ferry Pier and five boats and ships owned by the Seaport Museum
- 13 other historic buildings, including the Fraunces Tavern and Schermerhorn Row Blocks and several others

Additionally, in dialogue with the project team, the New York State Historic Preservation Office (SHPO) identified several other sites in the study area eligible to be on the National Register of Historic Places, including:

- Old South Ferry Station
- 120 Wall Street Offices (1930; former American Sugar Refining Company)
- The FDR Drive

8. Topography and Soil Conditions

In evaluating the study area's topography, the project team found that there is a significant rise in elevation from the shoreline to inland neighbors. With elevations only a few feet above mean sea level near the shoreline, the neighborhood gently slopes upward, with higher ground located further inland. However, in certain locations, the elevation of the shoreline is higher than the inland streets, which can cause a dangerous "bathtub" effect, trapping water behind higher areas during flooded conditions. Further, any coastal defense project must effectively tie-in from lower shoreline elevations to higher upland elevations. A map of the topography in the study area can be seen in Figure 26.

Figure 26. Study Area Topography

The project team also investigated existing soil conditions in the study area, finding that much of the soil in the area is "urban fill," best described as natural and soil materials that have been moved around by humans, reflecting centuries of expansion and reformation (see Figure 27).

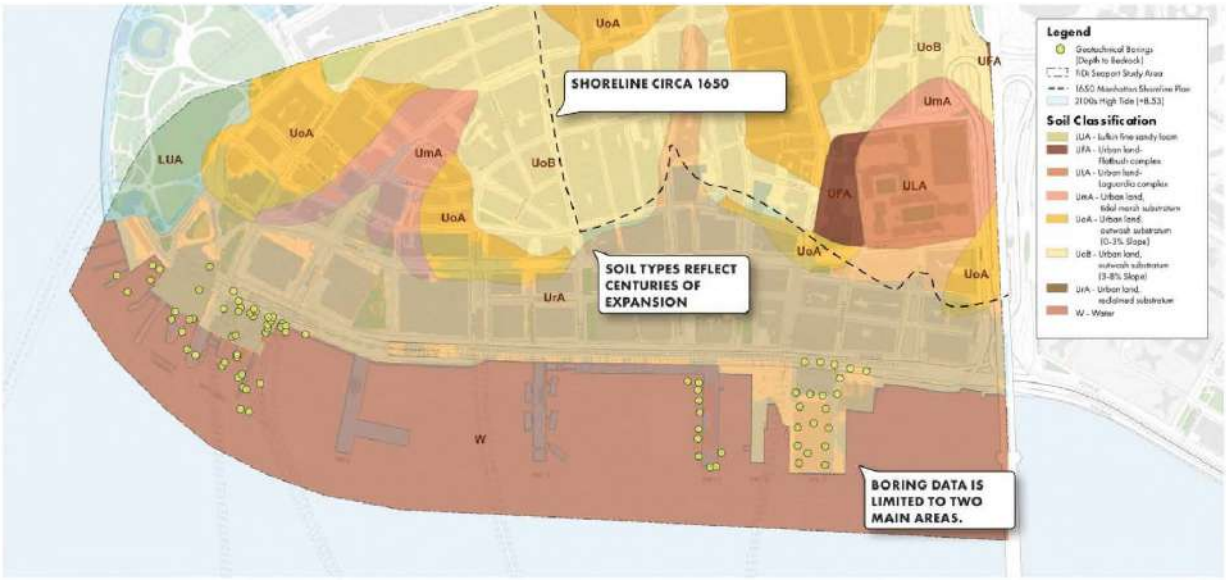

Figure 27. Existing Soil Conditions

Based on preliminary borings examined near Whitehall Ferry Terminal, the depth to bedrock ranges 30-40 feet below the surface (see Figure 28). Additionally, with the study area's history of relieving platforms—traditionally constructed using timber piles and timber decks—the project team determined that there is a high likelihood of subsurface timber or other obstructions such as stone, construction debris, and old foundations along the shoreline.

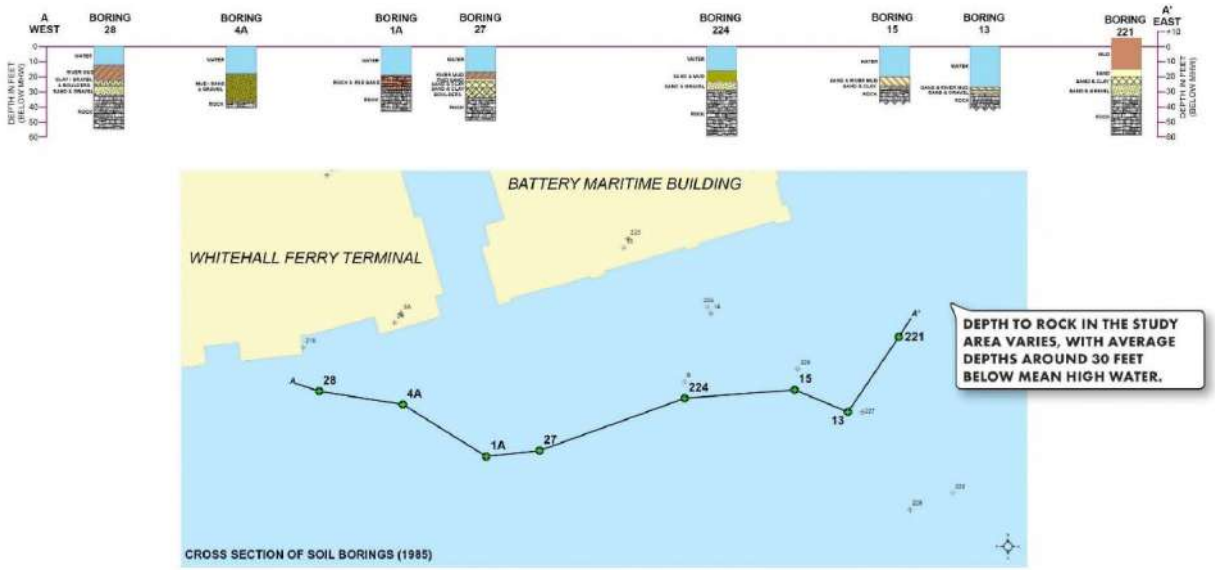

Figure 28. Study Area Soil Profiles

9. Bathymetry and Tidal Conditions

The waterfront in the study area runs along the East River which, despite its name, is a tidal strait linking western Long Island Sound with New York Harbor. As a tidal strait, water flows in both directions, and the waterway experiences low tides and high tides twice a day—much like the ocean tides one might experience at the beach.

The East River is approximately 16 miles long and between 600 and 4,000 feet wide. The project team evaluated the bathymetric depth of the East River, determining that, near the shoreline, the waterway is relatively shallow (less than 10 feet deep). However, the East River deepens significantly as it approaches the edge of the current pier structures, reaching even deeper towards the center of the river (as much as nearly 58 feet deep). Figure 29 illustrates the bathymetric depth of the East River near the study area.

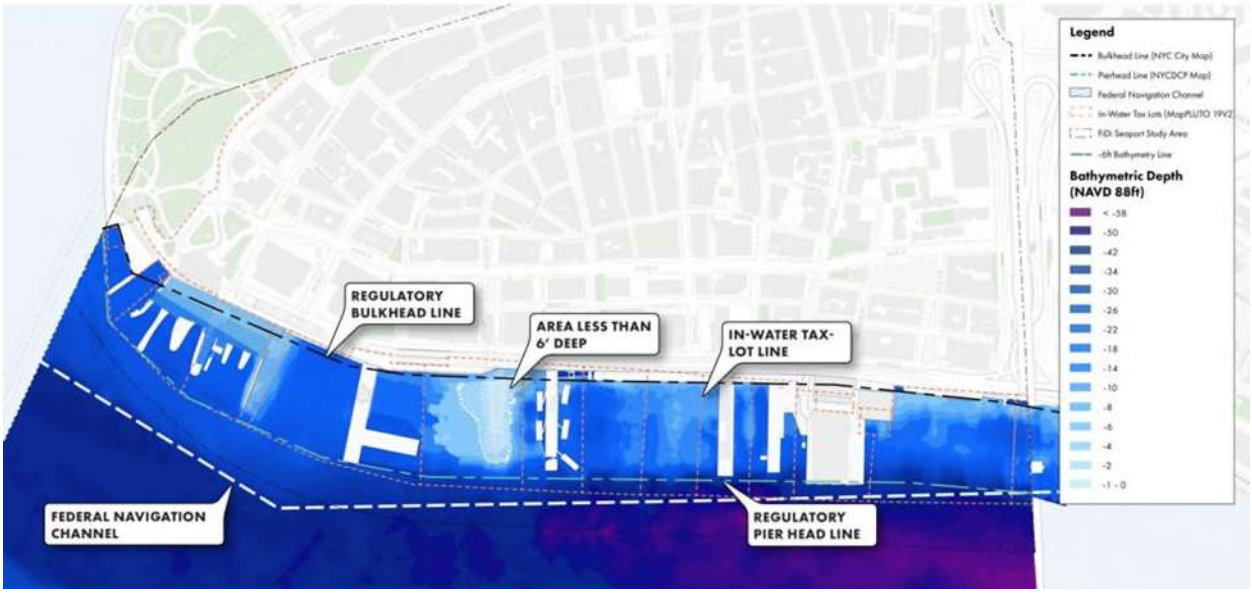

Figure 29. Study Area Bathymetry

To better understand current tidal conditions in the East River, the project team conducted hydrodynamic modeling throughout the master planning process, as detailed in the Hydrodynamic Modeling Appendix. The project team used the Advanced Circulation Model for Ocean, Coastal, and Estuarine Waters (ADCIRC) and the Simulating Waves Nearshore (SWAN) coupled wave and hydrodynamic model, ADCIRC+SWAN, as the primary hydrodynamic modeling system to model tides and storm surge in this project.[4]

The hydrodynamic modeling effort revealed that the maximum water surface elevation (WSEL) does not vary significantly across the study area, as shown in Figure 30.

[4] Dietrich, J.C., Zijlema, M., Westerink, J.J., Holthuijsen, L.H., Dawson, C., Luettich, R.A., Jensen, R., Smith, J.M., Stelling, G.S., and Stone, G.W. 2011. Modeling Hurricane Waves and Storm Surge Using Integrally-Coupled, Scalable Computations. Coastal Engineering, 58, 45-65

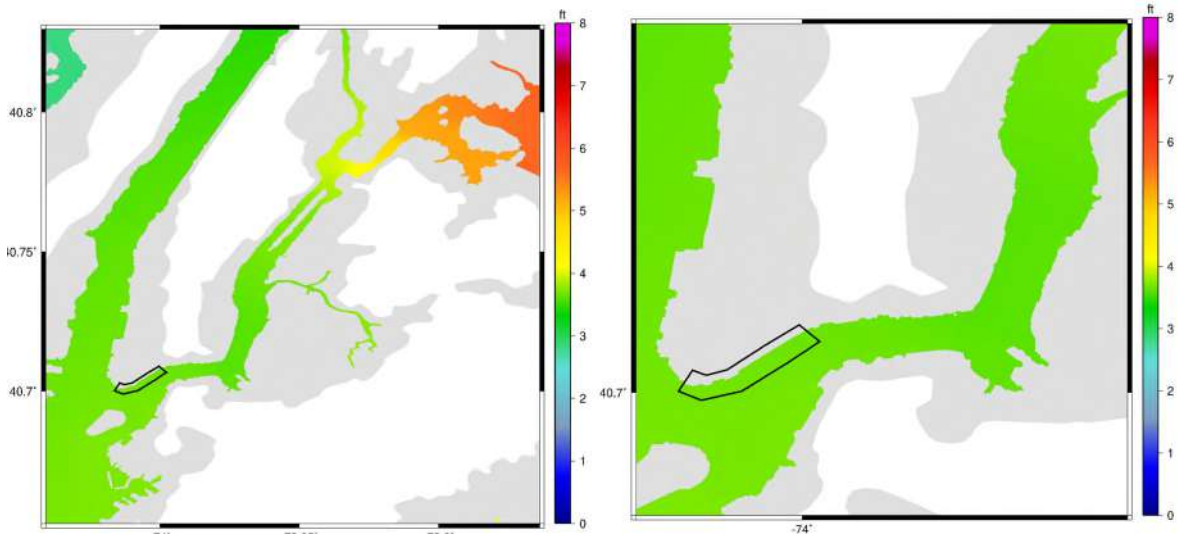

Figure 30. Maximum WSEL (ft, NAVD88) over the full tidal cycle computed by ADCIRC. Left – Regional view. Right – Study area view. Approximate study area boundaries outlined in black.

However, peak tidal velocity does vary significantly across the study area, as shown in Figure 31. It is higher in the northern portion of the study area, where the East River constricts near the Brooklyn Bridge. In this portion of the sub-area, the project team observed that the maximum velocity exceeds 8 feet per second in some locations, which is very high for purely tidal velocities. Further to the south, offshore from the Financial District, the project team computed a much lower maximum velocity—on the order of 3 to 4 feet per second.

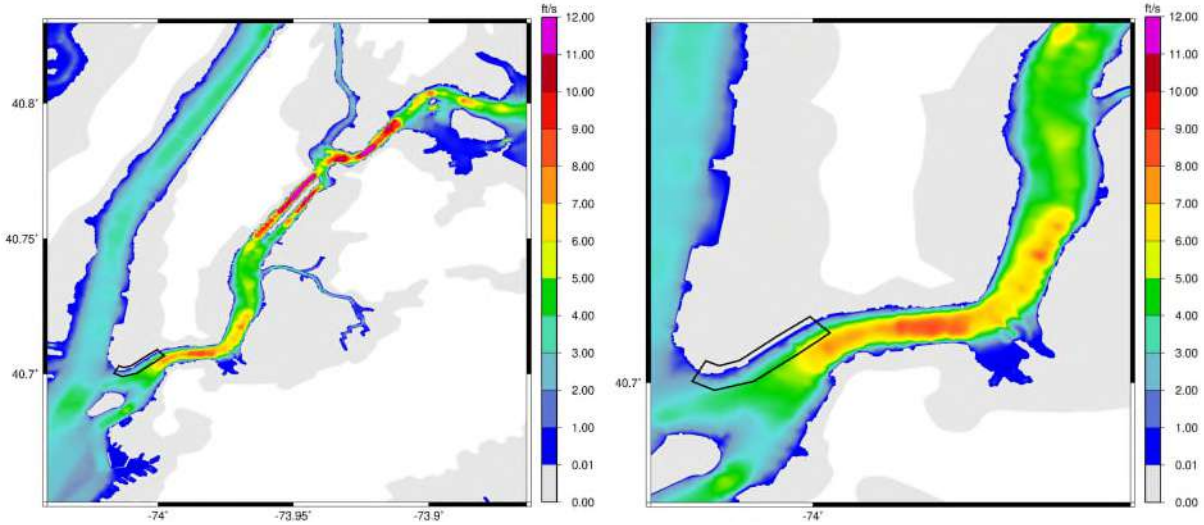

Figure 31. Maximum depth-averaged water velocity (ft/sec) computed by ADCIRC over the full representative tidal cycle. Left – Regional View. Right – Study Area view. Approximate study area boundaries outlined in black.

For additional details on the hydrodynamic modeling effort and its application in determining the potential tidal impacts of various in-water coastal defense options, see the Hydrodynamic Modeling Appendix.

10. Neighborhood Demographic Trends

Early in the master planning process, the project team examined the current and recent historical demographic conditions in the study area. As of 2017,[5] the study area has a population of roughly 25,400 individuals and 12,000 households—a 27% and 18% growth from 2012, respectively, far outpacing growth trends in Manhattan more broadly. A majority of this population is between the ages of 15 and 64 years, with 33% of the study area population between the ages of 25 and 34 years. Residents in the study area are predominantly white, comprising 70% of the population, while 3% of the population is black and 22% Asian. Roughly 6% of the population is Hispanic (of any race). The project team also found that residents (aged over 25 years) in the study area have received a high level of education, with 81% having received a bachelor's degree or higher as of 2017, compared to 61% in Manhattan more broadly.

On average, households in the study area earn a higher income relative to households in Manhattan more broadly. Approximately 65% of households in the study area earned more than $100,000 per year in 2017, compared to 42% in Manhattan more broadly. Interestingly, average household size in the study area increased slightly from 1.96 individuals in 2012 to 2.11 individuals in 2017. However, compared to Manhattan averages, the study area's average household size is smaller and relatively stable, reflecting the number of single and older adult populations. Most residences in the study area—73%—are renter-occupied.

As of 2017, the study area employs roughly 168,500 working individuals—an 8% growth in the 15-year period from 2002. This growth trend is slower than Manhattan's average annual growth of 5.4% per year and reflects a shift in the study area from primarily a business district to a more mixed-use neighborhood, in part through the conversion of a large amount of office space to residential and hotel uses.

One significant business sector finding is greater diversification in the study area's employment composition. As shown in Figure 32, the study area has seen a major decline in finance and insurance employment, dropping from 55% of total employment in 2002 to 27% in 2017. Meanwhile, employment in professional, scientific, and technical services, health care, and accommodation and food services has increased in the study area. Office using employment (OUE) has become more diversified as new types of professional, scientific, and technical services tenants cultivate the area. In addition, growth in the health care as well as accommodation and food services employment category has likely occurred due to the increase in urgent care, childcare, and other retail that supports a growing residential population. Accommodations-related employment in the study area has increased in conjunction with New York City's growth in tourism and business travelers over this time period; in 2017, the Downtown Alliance estimated roughly 17.4 million annual visitors to Lower Manhattan more broadly.[6]

[5] 2017 American Community Survey (ACS) 5-year estimates
[6] Downtown Alliance. "Lower Manhattan Unique Visitor Count. 2022. Available online at: https://downtownny.com/business/research-statistics/

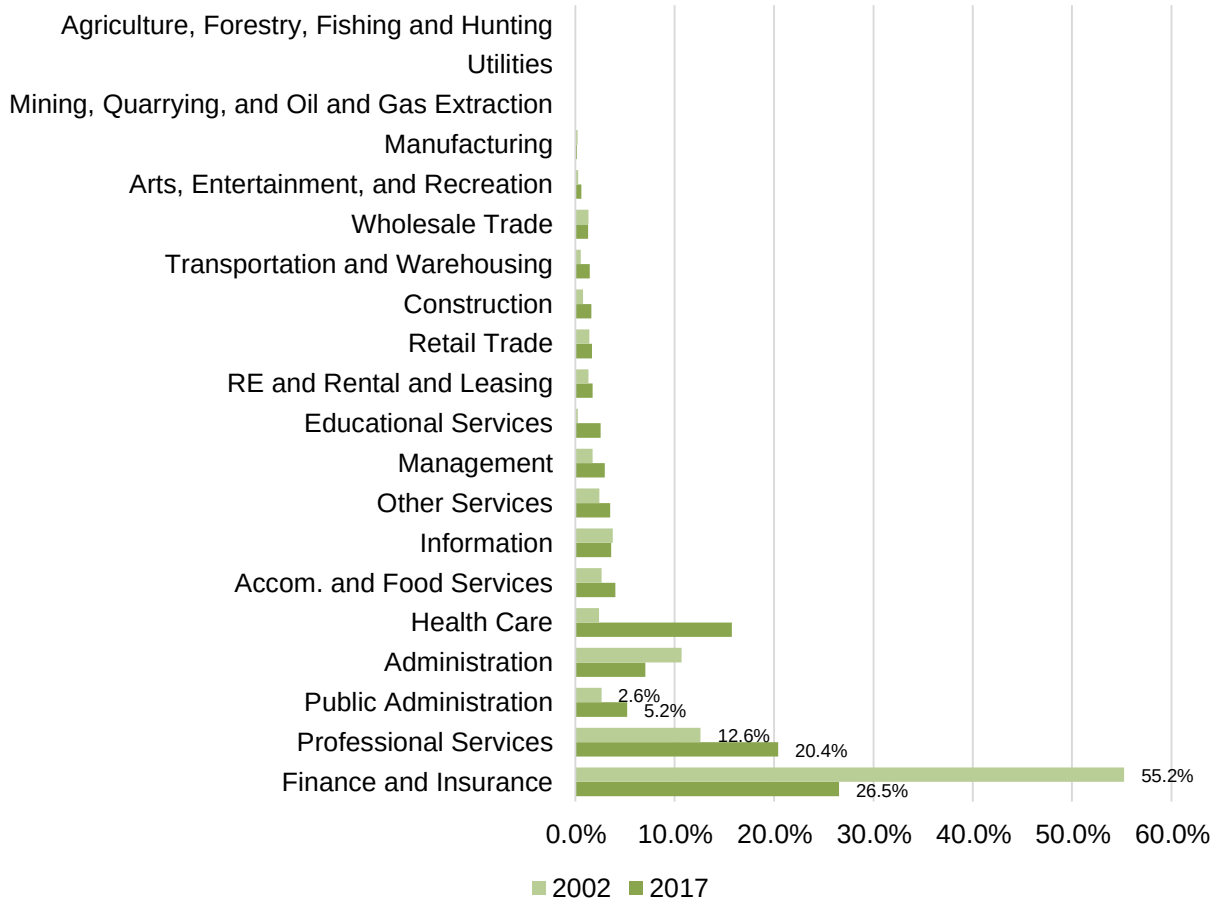

Figure 32. Total Employment by Sector in Study Area (2002-2017)